

Small & Medium Duty Bus Air Conditioning Maintenance

Prerequisites to Servicing Bus A/C Systems

- Basic Knowledge of how the bus a/c system works (See about A/C section listed on www.rifledair.com).
- The Right Tools (i.e., Recovery Machine HFC-134A /R-12) NOTE all RAC Systems use HFC-134A environmentally friendly refrigerant.
- Proper crimping tools
- Leak detection equipment
- Suggested Refrigerant information (noted on sticker located in the engine compartment of the bus) if no sticker can be found please consult the suggested refrigerant charging chart. Do not charge your system by using the sight glass! This method often results in overcharging the system.
- The Right Stuff! - Proper replacement parts and components (i.e., filter dryers, expansion valves, condenser fans, etc.). All parts can be purchased through your nearest RAC Dealer or Distributor.
- You can rely on your RAC Dealer or Distributor for technical support and service.
- If you are installing a RAC system and need help please consult the installation help field located in the Master Warehouse Distributor section of www.rifledair.com
- You may also consult the A/C Help Line at www.rifledair.com

Troubleshooting a Bus A/C System

1. Discovery

- First determine the nature of the problem.
- Note and compare the problems to symptoms.

2. Inspection

- Check for loose belts & hardware.
- Make sure condenser fans are running & not broken.
- Check for loose fittings.
- Check that all speeds on evaporator fans are working. If not working, this indicates an electrical problem, check relays at circuit board. (Wiring diagrams can be found at www.rifledair.com).
- Check for disconnected or damaged wires.
- Make sure heat exchangers are clean (filters).
- Check for blown fuses or bad breakers.
- Check airflow across condenser -- No Blockage!
- Check for large obvious leaks (oil deposits on hose).

3. Hook up pressure gauges

- Performance check (15-20 Degrees F differential between inlet and outlet temperatures at evaporators is ideal). This performance will vary from system to system especially when different types and sizes of compressors are used.
- Low gauge pressure on high side (discharge from compressor) indicates a leak. Low suction & high head pressure indicates a restriction usually caused by a faulty filter drier or blocked expansion valve.
- Turn off engine and perform system leak check.
- If leak is detected HFC-134A refrigerant must be added to prevent compressor damage.
- Turn system on with engine fast idle on (approx. 1500 Rpm's). If you are confident that the system is fully charged as per the recommended refrigerant-charging chart or to the level listed on the vehicle sticker, compare manifold gauge reading to air conditioning standards.
- It may be necessary to stimulate system-operating conditions that were present when the problem occurred.

4. Check suspected components individually

5. Performance Check

- Check pressure, and air outlet temperature.
- Determine the air temperature difference across the evaporator (15-20 degree F level suggested).

6. Final Leak Check w/bus Engine Off!

Maintenance Schedule

- Inspect belt alignment, tension & belt wear (Bi-Monthly)
- Inspect & clean condenser fins with air or water (Bi-Monthly)
- Clean evaporator filter with air or water (Bi-Monthly)
- Check Condenser fans & blades (Do they move freely and are they unbroken?) (Bi-Monthly)
- Check evaporator blowers (Bi-Monthly)
- Clean evaporator filter (Bi-Monthly)
- Check refrigerant sight glass to verify that the system is charged. Check for contamination. If there are bubbles you may need to charge the system. Do not charge the system using the sight glass, as it is easy to overcharge an R-134A system. Use the recommended charging level chart or compare your charge listed on the RAC sticker found in the engine compartment. Check the color of the refrigerant. If green is used, a deep green color is good. Yellowing indicates moisture. Please service immediately. (Bi-Monthly)
- Inspect mounting bracket and compressor (Bi-Monthly)

- Look for oil build up at hose connections. This could indicate a leak. (Quarterly)
- Check filter dryer by checking the inlet and outlet temperature. They should be equal. If not, this could indicate a blockage. Replace annually! (Quarterly)
- Inspect refrigerant hoses and wiring for rubbing, punctures, or cuts. Also make sure they are secure and away from the exhaust and moving parts (Drive Shaft Fans, etc.) (Quarterly)
- Check for corrosion at electrical connections (Bi-Monthly)
- Replace all filters "As needed!"
- Check voltage = driver should check gauge as per CDL Requirements. If you are not experiencing any problems Driver check should suffice. (Quarterly)
- Measure head pressures
- Inspect Electrical System for Corrosion (Quarterly)
- Check air gap on compressor (only if problem exists)
- Check evaporator drain pan for dripping (no drip = no problem!)

Note: This is merely a maintenance guide. Certain procedures may require more frequent service in certain areas.

Attention Getters:

- System Shuts Down
- System is Blowing Warm Air Only
- Vibration in the engine compartment
- Rattling noises on interior of bus at evaporator
- Oil on the HFC-134A hoses and/or fittings
- Water dripping or blowing from evaporators or ducts
- Vibration in the evaporator
- A significant reduction in air flow
- Increase in the outlet temperature from the evaporators